DOCUMENT RESUME

ED 416 508 CS 509 696

AUTHOR Smith, Ronda L.

TITLE The Stages of Change Model: An Effective Audience Analysis Tool Used To Design and Implement Health Promoting Messages.

PUB DATE 1997-11-00

NOTE 39p.; Paper presented at the Annual Meeting of the National Communication Association (83rd, Chicago, IL, November 19-23, 1997).

PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.

DESCRIPTORS Audience Analysis; *Behavior Change; Behavior Modification; College Students; Communication Research; *Exercise; *Health Education; *Health Promotion; Higher Education; Life Style; Models; *Motivation Techniques; Persuasive Discourse; Physical Health

IDENTIFIERS *Health Communication; Message Transmission

ABSTRACT

Researchers have been slow to acknowledge the salient role communication can play in motivating people to adopt more healthy lifestyles. Because persuasive messages increase awareness and can increase health promoting behaviors, it is important to determine the most effective health promoting messages in various health contexts. Thus, the primary goal of this study was to test a method of developing messages that enhance health behaviors, specifically exercise. An experimental design was used to test two research questions and one hypothesis. Data were collected at three time periods; subjects were college students in an introductory communications studies course. Results indicated the importance of communication in health promotion. Messages geared to subjects' stage of exercise were effective. In particular, the contemplation message and the relapse message significantly improved contemplators' and relapsers' stage of exercise, respectively. Messages should be developed that are framed toward peoples' stage of behavior change. The Stages of Change Model (Proshaska and DiClemente, 1983, 1986) was an effective audience analysis tool in this health promotion study. (Contains six tables of data and 58 references; sample questionnaires and forms are appended.) (Author/CR)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 416 508

The Stages of Change Model: An Effective Audience Analysis Tool used to Design and Implement Health Promoting Messages

Ronda L. Smith
University of Wisconsin—La Crosse
Communication Studies
Room 315 Center for the Arts
1725 State Street
La Crosse, WI 54601

E-mail:Ronda_Smith@uwlax.edu

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
R. Smith
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

CS509686

Paper presented at the 1997 National Communication Association Convention

BEST COPY AVAILABLE

Abstract

Researchers have been slow to acknowledge the salient role communication can play in motivating people to adopt more healthy lifestyles. Because persuasive messages increase awareness and can increase health promoting behaviors, it is important to determine the most effective health promoting messages in various health contexts. Thus, the primary goal of this study was to test a method of developing messages that enhance health behaviors, specifically exercise.

An experimental design was used to test two research questions and one hypothesis. Data were collected at three time periods. Results indicated the importance of communication in health promotion. Messages geared to subjects' stage of exercise were effective. In particular, the contemplation message and the relapse message significantly improved contemplators' and relapsers' stage of exercise, respectively. Messages should be developed that are framed toward people's stage of behavior change. The Stages of Change Model (Prochaska & DiClemente, 1983, 1986) was an effective audience analysis tool in this health promotion study.

BEST COPY AVAILABLE

The Stages of Change Model: An Effective Audience Analysis Tool Used to Design and Implement Health Promoting Messages

Kreps and Thornton (1992) defined health communication as the "way we seek, process and share health information" (p. 2). However, health communication research has focused primarily on physicians, patients, and the medical care setting (Costello, 1977; McKnight, 1988;). How people behave during health promotion efforts has received scant attention (Arntson, 1985). The World Health Organization defined health promotion as participation in activities that enable people to increase control over their health (WHO, 1984). Hence, health communicators need to recognize the impact of internal control factors that influence health-related behaviors on gaining acceptance of the behaviors they are promoting.

Researchers have been slow to acknowledge the salient role communication can play in motivating people to adopt more healthy lifestyles. Because persuasive health messages increase awareness and can increase health promoting behaviors (Kreps & Thornton, 1992), it is important to determine the most effective health promoting messages in various health contexts. The goal of this study, therefore, is to assess how messages interact with stages of behavior in health promotion. Specifically, exercise-enhancing messages will be developed and evaluated.

Substantial evidence supports the notion that exercise increases a person's health. Physical exercise decreases the risk of cardiovascular disease (Paffenbarger, 1978), reduces perceived stress and anxiety (King, Taylor, & Haskell, 1993), enhances longevity (Paffenbarger, Hyde, Wing, & Hsieh, 1986), and improves psychological well-being (Folkins & Sime, 1981; Pierce, Madden, Siegel, & Blumenthal, 1993). Yet, the knowledge of the benefits of physical fitness have not induced exercisers to do so regularly.

Although memberships in health clubs are increasing, approximately 50% of the members who enter an exercise program will exit within 6 months to 1 year (Dishman, 1988). Such a trend highlights the need for an emphasis on personal control over health behaviors (Brownell, 1991). To comply with health promoting messages, people must perceive the change as beneficial and want to change that behavior.

Health communication can be used to improve health behavior (Kreps & Thornton, 1992). For example, Arntson (1985) stated that functional outcomes of health communication could include: (a) perceiving control over one's health, (b) gaining information to reduce uncertainty, and (c) improving health-related decision making. How a person processes a change in health behaviors is important for health communication researchers to know (Arntson, 1985). We must understand what messages enhance health behavior. The Transtheoretical Model (Prochaska and DiClemente, 1983, 1986) will be used to help develop exercise-enhancing messages and to determine the most effective messages for receivers in various stages of their exercise behavior

BEST COPY AVAILABLE

Social Exchange Theory

Social exchange theory includes cognitively processing the rewards of a behavior. Social exchange theorists explain actions in terms of maximizing the rewards and minimizing the costs (Thibaut & Kelley, 1959). Weinstein (1988) posited that people use a decision making process dependent on a costs-versus-rewards evaluation when considering change of their health behaviors. In reference to changing a health behavior, decisional balance can also be explained in terms of costs and rewards.

Decisional balance is a cognitive element in Prochaska and DiClemente's (1983, 1986) Transtheoretical Model (Stages of Change Model) framework. Decisional balance is the result of a perception of the positive (reward) and negative (cost) aspects of a behavior change (Velicer et al., 1985). If the rewards outweigh the costs of the new behavior, the behavior change may occur. Conversely, if the costs outweigh the rewards of the behavior change, a person may not change the current behavior.

The Stages of Change Model has been used as a framework for several health behavior studies. The model is a stages-of-change process that is used to explain intentions to change behavior (Prochaska & DiClemente, 1983). Maibach and Cotton (1995) suggested that the Stages of Change Model expedites audience segmentation efforts by framing messages for the cognitive and behavioral characteristics of different groups in each stage of the Stages of Change Model.

Determining one's current stage of behavior will allow the target audiences to receive messages congruent with their current stage of behavior. Decisional balance, another component of the Stages of Change Model, will also be measured to analyze people's decision making process. Based on social exchange theory, if the rewards outweigh the costs of the targeted behavior, a person should change his or her behavior. Similarly, if the costs outweigh the rewards of the targeted behavior, a person will not adopt the new behavior. Health promoting messages may only be effective when a person decides the targeted behavior will be more rewarding than costly.

When developing effective exercise-enhancing messages, health communicators must begin with formative research, or understanding the attitudes, perceptions, and behaviors of an audience before the campaign is developed (Mickey, 1995). The literature involving audience segmentation can help health communicators develop better health campaigns.

Audience Segmentation

Maibach, Kreps, and Bonaguro (1993) stated that an audience analysis should emphasize segmentation of a large audience into smaller, homogeneous target audiences. In addition, an audience should not be conceptualized as an unidentifiable mass (Dervin, 1989). Rather, campaign planners should focus on the different needs of audience members. Dervin stated that a more specific conception of the audience will lead to several distinct avenues of communication design.

Audience segmentation is an important determinant of the outcome of any communication campaign (Rogers & Storey, 1987). An audience segment must be homogeneous and should respond to a message differently than any another segment (Lefebvre & Flora, 1993). Hence, an effective message for one audience segment may be ineffective for another segment.

Slater (1995) defined members of a segmented audience as sharing "similar antecedent qualities—knowledge, concerns, motivations—that determine the health behavior in question and that permit tailoring of messages or interventions to those members" (p. 187). Audience segmentation can be as simple as dividing people demographically. A more appropriate method is to segment an audience through variables such as motivations and constraints regarding the desired health behavior (Slater, 1995). The Stages of Change Model can be used to segment an audience based on motivations and constraints.

Health communicators need a better understanding of what causes people to change their health behaviors. Lefebvre and Flora (1993) argued that health promotion efforts have outgrown the information base of health behavior change strategies that can enhance the public's health. To be effective, health promotion efforts must begin with an understanding of the target audiences' health beliefs so that messages can be targeted to their values and behaviors (Kreps & Kunimoto, 1994). The following section will explain the utility of the Stages of Change Model as an audience analysis technique.

Stages of Change Model

Prochaska and DiClemente (1983, 1986) developed the Stages of Change Model in an effort to explain intentions to change behaviors. The Stages of Change Model has been used to examine different, cyclical processes of change in several self-change, health situations such as smoking (Prochaska & DiClemente, 1986; Prochaska, Velicer, DiClemente, & Fava, 1988; Wilcox, Prochaska, Velicer, & DiClemente, 1985), weight control (Prochaska & DiClemente, 1986; Prochaska, Norcross, Fowler, Follick, & Abrams, 1992), and exercise (Dishman, 1991; Marcus, Rakowski, & Rossi, 1992; Sonstroem, 1988).

The Stages of Change Model consists of five stages of behavior change: (a) precontemplation (not planning to change), (b) contemplation (considering to change), (c) action (participating in new behavior), (d) maintenance (sustaining the changed behavior over time), and (e) relapse (discontinuing to participate in the behavior) (Prochaska & DiClemente, 1983). Relapse is considered terminating the changed behavior for 1 year, and can occur at any stage in the process (Prochaska, Velicer, DiClemente, Guadagnoli, & Rossi, 1991). In an attempt to deter relapse, health messages can be designed for people in any stage of change process.

The Stages of Change Model has salient implications for health communicators. One implication is that the Stages of Change Model can be used to segment audiences (Maibach & Cotton, 1995). A health message can

be designed for both the cognitive and behavioral characteristics of audience members at each stage in the Stages of Change Model. For example, contemplators will need a message that is designed to encourage a health change, whereas receivers in the maintenance stage will need a message that is designed to reinforce their decision to maintain a healthy lifestyle.

The Stages of Change Model has been used as a framework for several studies (see Prochaska & Marcus, 1994). For example, Wilcox et al. (1985) examined how various traits could be used to decipher changes in smoking behavior. Subjects were assigned to one of the five stages of behavior change, and completed a questionnaire that included 17 predictors of self-change in smoking. The categories of predictors included: (a) demographic variables, (b) smoking history, (c) health history, and (d) life experiences. Wilcox et al. reported that subjects faced with health problems, such as emphysema, were more likely to progress to another stage in the model. Furthermore, non-life-threatening health problems, like the common cold, also influenced smokers to change their smoking intentions (Wilcox et al., 1985). Health communicators can design messages to make individuals aware of their unhealthy lifestyles.

Barke and Nicholas (1990) used the Stages of Change Model to examine active versus inactive older adults' exercise behavior. The researchers studied 59 older adults who participated in a 10-week exercise program (active), or a retired-seniors program (inactive). The active participants were more likely to be in the action or maintenance stage than were the inactive adults. Inactive adults were most likely to be in the precontemplation stage. Thus, the Stages of Change Model can be used as a logical way to distinguish groups in various health situations.

In regards to the Stages of Change Model model, Marcus, Selby, Niaura, and Rossi (1992) studied stages of exercise behavior change and self-efficacy. The researchers first developed an exercise-specific self-efficacy scale and stages-of-change measure. Over 1,000 participants from a worksite health promotion project completed both measures and provided demographic information. Marcus et al. found a significant difference in self-efficacy scores between the precontemplation and maintenance groups. Specifically, people in the precontemplation stage scored the lowest on self-efficacy, and those in the maintenance stage scored the highest. Marcus et al. suggested that groups may benefit from messages that are specifically designed to enhance self-efficacy at their particular stage in the Stages of Change Model. For example, people in the precontemplation stage may need more motivational messages than those in the maintenance stage because precontemplators have not initiated the targeted change in the health behavior (Marcus et al., 1992).

Marcus and Owen (1992) used three measures to determine motivational readiness via exercise behavior change: (a) the TM stages-of-change, (b) self-efficacy, and (c) decisional balance. The researchers found that precontemplators differed from those in all the other stages on self-efficacy and decisional balance. Specifically, precontemplators scored the lowest and maintainers scored the highest on self-efficacy and decisional balance. Marcus and Owen suggested that exercise health campaigns could be targeted to precontemplators by addressing the barriers to and benefits of exercise.

Rossi, Rossi, Velicer, and Prochaska (1995) also claimed that the Stages of Change Model is a motivational readiness model. They stated that readiness to change is included in the stage-of-change process. Furthermore, they found that decisional balance and self-efficacy were intervening variables of motivational readiness (Rossi et al.).

Decisional balance. Velicer et al. (1985) added the component of decisional balance to the Stages of Change Model. Decisional balance is the outcome of a person's perception of the positive and negative aspects of the new behavior (Velicer et al., 1985). The researchers conducted a 6 month study with 843 subjects to determine the theoretical implications for the decisional balance construct. Velicer et al. found that smoking groups had a more positive decisional balance about smoking than recent quitters and long-term quitters. Any motivation to change behavior is based on decisional balance. Prochaska et al. (1991) found that decisional balance can be used to predict behavior change. Hence, the level of decisional balance is one factor that should aid in stage advancement in the Stages of Change Model.

The impact of decisional balance on behavior has been the focus of recent research. For example, Rakowski, Fulton, and Feldman (1993) used decisional balance to determine women's adoption of a mammography screening. Six hundred and seventy-six women participated in telephone interviews that measured stages of change and decisional balance. A positive decisional balance was associated with regular screening and intention to continue scheduling the exam (Rakowski et al., 1993). Rakowski et al. concluded that women in the maintenance stage had the most positive decisional balance.

Exercise is yet another health behavior that has been studied via decisional balance. Marcus, Rakowski, and Rossi (1992) studied 778 volunteers from four worksites. The researchers examined exercise adoption by using a decisional balance measure to determine at what stage a person was located in the Stages of Change Model. Regular exercise was defined as exercising 3 or 4 days per week for at least 20 minutes each time. The decisional balance of exercise adoption was significantly correlated with particular stages in the model. Specifically, Marcus et al. found that decisional balance scores were lowest for those in the precontemplation stage, and highest for

exercisers in the maintenance stage. Messages could be designed to increase one's decisional balance so that a more positive decisional balance would improve one's health.

In sum, the Stages of Change Model can be used to study the process of health behavior change. The Stages of Change Model was designed to explain intentions to change behaviors (Prochaska & DiClemente, 1983). However, health communicators can use the Stages of Change Model to design messages that are congruent with a person's current stage in the model. Each audience segmentation effort can begin with an analysis of the stages of change (i.e., precontemplation, contemplation, action, maintenance, and relapse) (Maibach & Cotton, 1995).

Message Design

Flay and Burton (1990) stated that before communication can be effective at influencing people, the message, its source, and how it is distributed must be acceptable to the target audience. Although messages are a key factor in the study of communication, much of the research has been general, rather than specific, in the development of messages and evaluation of message effects (Jackson, 1992). In health communication, scant attention has been given to specific health promoting messages. Burke, Becker, Arbogast, and Naughton (1987) developed an adolescent smoking prevention program that involved four persuasive techniques: (a) educational curriculum, (b) competition and rewards, (c) student activation, and (d) community activation. The researchers described each intervention; however, there are few specific explanations of message design. Burke et al. stated that the educational curriculum messages were designed to:

> increase the number of undesirable consequences adolescents associate with smoking (e.g., smoking has negative short-term physical effects like increased heart rate), to decrease the number of desirable consequences associated with smoking (e.g., smoking does not make an adolescent more mature and sophisticated) (p. 10).

Hence, researchers who may want to develop another smoking prevention program may not have enough information to develop effective messages. Maibach and Parrott (1995) edited the only book that specifically addresses health message design. Literature involving health promoting messages should help in the development of effective messages for health promotion.

Health promoting messages. McAlister, Ramirez, Galavotti, and Gallion (1989) posited that health campaigns must perform three functions: (a) inform the audience about their unhealthy behaviors, (b) persuade the audience to avoid those unhealthy behaviors, and (c) train the audience to use skills that will transform intentions of behavioral change into action. Training audience members to change their behaviors is an important function

because persuasion campaigns usually waste energy discussing values, rather than instructing the audience about how to comply with those values (McGuire, 1989).

In addition to teaching people how to engage in particular health promoting behaviors, Donohew (1990) argued that individual differences need to be examined within the health promotion context. Several researchers have recognized the importance of individual differences in their studies of health promotion research (Babrow, 1991; Maibach et al., 1991; Thompson & Cusella, 1991). To advance this area of study, the Stages of Change Model will be used to segment the audience based on their particular stage of exercise.

To be more effective, health promoting messages should focus on the receivers' expectations about the outcomes of the changed behavior (Babrow, 1991). In order to construct an effective campaign, messages should be individualized and based on internal control factors. Knapp (1988) stated that some exercise campaigns have been ineffective in changing behaviors. One reason for the poor results in exercise adoption campaigns is the focus on education rather than on behavioral or motivational characteristics (Marcus, Selby, Niaura, & Rossi, 1992). However, each audience segment will be motivated differently. Thus, health communicators must design messages to meet each target audience's specific needs.

To guide segmentation efforts, campaign planners must gather data concerning segmentation such as demographic, psychographic, and behavioral variables. Maibach et al. (1993) suggested that the Stages of Change Model could be used as a psychographic segmentation strategy. The stages within the model can be used to divide audiences based upon the readiness of groups to change their health behaviors. Furthermore, Best, Brown, Cameron, Smith, and MacDonald (1989) posited that determining what type of intervention works with particular characteristics of people in various situations is an important aspect of evaluation that has not been addressed well in health promotion research. Best et al. suggested that the Stages of Change Model could be used to represent the process of behavior change in health promotion programs.

Each audience segment will be motivated differently; therefore, messages must be constructed to address the attitudes and behaviors of each segment. Kreps (1988) stated that attitudes and beliefs affect how people use health information. Maibach and Cotton (1995) developed messages that were received in a variety of printed formats (e.g., newsletters, cards, flyers) and featured the stories of typical people. They included suggestions and examples of messages that could move people from their current stage to the next stage in the Stages of Change Model; however, the relapse stage was not identified in the HIV prevention projects. To develop effective exercise-enhancing messages for the current study, their suggestions will be considered as well as information gained from a pilot test.

The present study includes a pilot test (Study I), and a test of the effectiveness of the Stages of Change Model as an audience analysis tool (Study II). The goal of Study I was to determine appropriate compliance-gaining messages for different audience segments. Subjects constructed messages that could motivate them to increase their exercise behavior. Burleson et al. (1988) argued that the construction procedure is superior to the selection procedure in compliance-gaining research. Other researchers have argued that the selection procedure is more appropriate for compliance-gaining research (Boster, 1988; Sorensen, Plax, & Kearney, 1989). Nonetheless, Burke (1989) posited that the construction procedure produces greater face, convergent, and criterion-related validity when researchers are interested in studying specific situations and strategy choices. Accordingly, I used the construction procedure in Study I to learn which compliance-gaining strategies were most useful in an exercise situation.

In Study I, subjects constructed messages that would motivate them to exercise more. I also measured subjects' current stage of exercise behavior using the Stages of Change Model. Hence, I could identify the subject-constructed compliance-gaining messages for each potential audience segment based on the Stages of Change Model. For example, each compliance-gaining strategy that people in the contemplation stage constructed could be differentiated from compliance-gaining strategies used in the precontemplation, action, maintenance, or relapse stages.

People do not intend to change their current health behavior in the precontemplation stage. Reasons people may be located in this stage are: (a) they are uninformed about the consequences of their behavior, (b) they do not believe they can change their behavior, and (c) they are defensive about social pressures to change their behavior (Prochaska & Marcus, 1994). The precontemplation message will be constructed to confront these barriers. Maibach and Cotton (1995) suggested that messages for precontemplators be designed to increase knowledge of their current unhealthy behavior. Precontemplators will be more receptive to messages that advocate self-evaluation rather than messages that encourage behavior change (Maibach & Cotton, 1995).

Contemplators intend to change their behavior, but are ambiguous about changing (Prochaska & Marcus, 1994). The contemplation message must encourage contemplators to change their current behavior to some degree, such as trying the new behavior once (Maibach & Cotton, 1995). Because contemplators think about changing their behavior, Maibach and Cotton suggested that this group needs to examine the costs and rewards of the new behavior. The contemplation message should include new positive outcomes and reinforce existing rewards of the behavior change.

The action stage involves behavior change within the last 6 months and is the stage that coincides with the most chance for relapse (Prochaska & Marcus, 1994). The action message should encourage people to identify obstacles of the new behavior and plan solutions (Maibach & Cotton, 1995). Because relapse is a common threat in the action stage, the action message should instruct people how to set realistic goals (Maibach & Cotton, 1995).

Prochaska and Marcus (1994) stated that participating in the new behavior for a period over 6 months is the maintenance stage. Because exercisers are exercising regularly, the maintenance message should recommend the refinement of exercise behavior. Maibach and Cotton (1995) stated that messages in the maintenance stage should address internal reinforcers such as positive self-evaluation and rewards for goal accomplishments.

Relapse can occur at any stage of behavior change (Prochaska et al., 1991). However, no recommendations have been made for message design at the relapse stage. The relapse message should motivate people to return to their past level of behavior. Relapsers may need to modify their goals so that behavior change is perceived as feasible. Social pressures and setbacks may need to be addressed in the relapse message.

As stated earlier, the purpose of Study I was to determine the compliance-gaining strategies appropriate for use in the precontemplation, contemplation, action, maintenance, and relapse messages. Because subjects completed demographic data that placed them into a stage of the Stages of Change Model, analysis could be conducted to correlate their current stage of exercise with their compliance-gaining strategy use. This analysis became the focus of the first research question:

RQ1: Does compliance-gaining strategy use differ based on a person's current level of exercise behavior (precontemplation, contemplation, action, maintenance, or relapse)?

Study II

Knowledge gained from the results of Study I were used to identify appropriate compliance-gaining messages for use in Study II. The purpose of Study II was to test the application of the Stages of Change Model as an audience analysis technique. The following research questions and hypothesis emerge in reference to the Stages of Change Model:

RQ2: Can exercise behaviors be changed by communication?

(a) Do certain messages produce short-term effects?

(b) Do certain messages produce long-term effects?

A positive decisional balance is defined as a person perceiving more positive than negative elements of the behavior change (Velicer et al., 1985). Positive decisional balance scores have been associated with healthy behaviors (Rakowski et al., 1993). Application of the reviewed literature can help predict a relationship between decisional balance and exercise behavior.

H1: Subjects with a positive decisional balance will increase their exercise behavior more than subjects with a negative decisional balance.

Methodology

The purpose of Study I was to ascertain whether people constructed different compliance-gaining strategies based on their current stage of exercise. The purpose of Study II was to investigate the effectiveness of the Stages of Change Model as an audience analysis technique. Because Study I was used as a pilot to test methodological issues for Study II, the results of Study I will also be discussed here.

Study I

Procedure

Two samples were used in Study I. The first sample consisted of college students attending a midwestern state university enrolled in an introductory communication studies course. These participants were fulfilling a class research requirement and had a modal age of 18. To have greater generalizability, a more diverse sample was needed. A second sample was gathered using purposive, quota sampling. Undergraduate students attending the same university enrolled in a communication research class were given specific age sampling quotas, beginning at 25 years of age. Students received extra credit for each survey that was returned. A total of 134 questionnaires were completed using both sampling methods. Participants across both samples then ranged in age from 18 to 78 (M = 27.99, SD = 12.57). Fifty-four (40.3%) of the participants were male and 80 (59.7%) were female.

Another demographic variable measured was the subjects' current stage of exercise behavior (see Appendix A). Initially, participants were assigned to one of five groups based on a score greater than or equal to 4 on one item with all other items receiving scores of less than or equal to 3. This procedure was unable to place 35 subjects, who were then placed into the group that they rated the highest. Six subjects marked identical scores for the relapse stage and another stage of exercise. These subjects were placed in the relapse stage. Thus, all participants (N = 134) were assigned to one of the following groups coded as follows: (1) Precontemplation—10 (7.5%) reported that they currently did not exercise and did not intend to start in the next 6 months, (2) Contemplation—43 (32%) reported that they currently did not exercise, but were thinking about starting in the next 6 months, (3) Action—26 (19.4%) reported that they currently exercised, but have only begun doing so within the last 6 months, (4) Maintenance—45 (33.6%) reported that they exercised regularly, and have done so for

longer than 6 months, and (5) Relapse—10 (7.5%) reported that they exercised regularly in the past, but were not doing so currently.

Compliance-Gaining Strategy Use. The purpose of Study I was to answer Research Question 1: Does compliance-gaining strategy use differ based on a person's current level of exercise? The results of this analysis will be used in Study II to help develop effective messages framed for each stage of exercise behavior (precontemplation, contemplation, action, maintenance, and relapse). The following discussion includes the data analysis that was used in Study I to determine differences in compliance-gaining strategy use based on subjects' current stage of exercise behavior. Because Study I was used as a pilot to test methodological issues for Study II, the results of Study I are also presented in this section.

Data Analysis. Participants in Study I were asked to write at least three messages that would motivate them to increase their exercise behavior (see Appendix B). Content analysis was used to determine the different compliance-gaining strategies used in each of these messages. Before coding began, an operationalization of each compliance-gaining strategy had to be determined. Several researchers have operationalized compliance-gaining strategies through their compliance-gaining typologies. Rather than develop a new typology, I examined three existing typologies to determine which strategies would be most appropriate for use in this study.

Marwell and Schmitt (1967) originally studied compliance-gaining strategies by using a predetermined typology. In their typology, subjects rated their likelihood of using 16 compliance-gaining strategies in four hypothetical situations. The 16 strategies were: promise, threat, positive expertise, negative expertise, liking, debt, moral appeal, pre-giving, aversive stimulation, positive altercasting, negative altercasting, positive self-feeling, negative self-feeling, altruism, positive esteem, and negative esteem. In addition, Cody, McLaughlin, and Jordan (1980) used a typology that participants constructed. The researchers then put the compliance-gaining strategies into categories they developed. Four of Marwell and Schmitt's (1967) compliance-gaining strategies were confirmed using this method (altruism, expertise, negative esteem, and threat). The Cody et al. typology also contained 13 original compliance-gaining strategies: hinting, simple statement, simple statement-question, deceit, disclaimer, reason, suggest negative alternatives, cooperation, coercion, inaction, negotiate, flattery, and negotiating alternatives.

In a third typology, Schenck-Hamlin, Wiseman, and Georgacarakos (1982) identified 14 compliance-gaining strategies based on specific properties that distinguish each strategy. Strategies included in their typology that were not represented in the Marwell and Schmitt (1967) and Cody et al. (1980) typologies are: ingratiation, allurement, guilt, warning, direct request, explanation. Schenck-Hamlin et al. stated that most researchers have taken typologies verbatim, rather than adopting relevant strategy properties for specific situations.

The codebook used for the content analysis in this study included the Marwell and Schmitt (1967), Cody et al. (1980), and Schenck-Hamlin et al. (1982) compliance-gaining typologies. Because strategy definitions differ between typologies, each typology was labeled in the codebook (Schenck-Hamlin et al. typology = A, Marwell and Schmitt typology = B, and Cody et al. typology = C). Thus, the relevant strategies for each typology could be determined for the exercise situation.

In sum, the results of the content analysis were used to help develop messages framed for each stage of exercise behavior. Various types of compliance-gaining messages may be more effective for a person in a particular stage of exercise. To answer research question one, subjects' compliance-gaining strategy use and current level of exercise were analyzed.

Subjects in Study I (N = 134) constructed 402 compliance-gaining messages. Two trained coders independently coded each message according to the codebook. Each strategy was given a numeric value (1-26). A value of zero was given to any message that did not fit into the typology (n = 62). Categories that were not used were eliminated from further analyses. Using Scott's pi, intercoder reliability for two independent coders was .80.

Results. Nine compliance-gaining strategies in the typology were not used and subsequently excluded from the analysis: debt, aversive stimulation, warning, deceit, self-feeling, suggesting negative alternatives, coercion, inaction, and negotiating. There was no significant difference between a person's stage of exercise behavior and use of compliance-gaining strategies, χ^2 (64, N = 340) = 55.19, p = .51 (see Table 1). From the compliance-gaining messages constructed, two compliance-gaining strategies were predominant. First, esteem (n = 89) accounted for 26.2% of the total compliance-gaining strategies constructed. Second, explanation (n = 83) accounted for 24.4% of the total compliance-gaining strategies constructed. A combination of two other compliance-gaining strategies, hinting and negotiating alternatives, accounted for 22.7% of the constructed messages. However, these strategies were not considered appropriate for written, persuasive communication. None of the remaining 13 strategies accounted for more than 5% of the total compliance-gaining strategies constructed. Therefore, in Study II, the compliance-gaining messages used for each stage of exercise behavior (precontemplation, contemplation, action, maintenance, and relapse) will include the esteem and explanation compliance-gaining strategies.

Study II

Study II employed an experimental ANOVA design. Data were collected at three different time periods during the study. In Time 1, data were collected to determine subjects' current level of exercise. In Time 2, subjects either read a pamphlet containing health promoting messages (treatment group) or a pamphlet on stagefright

(control group). Immediately after exposure to the pamphlet, data were collected to determine subjects' level of exercise, and decisional balance scores. In Time 3, data were collected to ascertain if subjects increased their exercise behavior. The control group was included in this study to determine the effectiveness of the intervention. The following discussion includes instrumentation, procedures, and analytical processes that were used in Study II.

Measurement Instruments

Decisional Balance Measure. To determine one's decisional balance, the pros and cons of the desired behavior must be assessed (Velicer, DiClemente, Prochaska, & Brandenburg, 1985). After exposure to the messages in Time 2, subjects were asked to write down the positive and negative elements of increasing their exercise behavior. After writing down the positive and negative elements, subjects were asked to rate their statements using a five-point, Likert-type format, with 1 indicating not at all important and 5 being extremely important (see Appendix C).

A positive decisional balance is operationalized as a subject perceiving more positive than negative elements. A positive decisional balance was coded as the sum of ratings of the positive statements that exceed the sum of ratings of the negative statements produced (e.g., +1, +2, +3, +4, etc.). A higher number indicates a more positive decisional balance. A negative decisional balance is operationalized as a subject perceiving more negative than positive elements. A negative decisional balance was coded as the sum of ratings of the negative statements that exceed the sum of ratings of the positive statements produced (e.g., -1, -2, -3, -4, etc.). A lower number indicates a more negative decisional balance. Subjects with a score of zero were placed in the negative decisional balance group.

Level of Exercise. Two measures were used to operationalize levels of exercise. First, the stage of exercise behavior (precontemplation, contemplation, action, maintenance, and relapse) was assessed in all three time periods. In Time 1, the stage of exercise scale contained a five-point Likert-type scale with responses ranging from (1) strongly disagree to (5) strongly agree (see Appendix A). Coding of this scale made it possible for subjects to indicate more than one stage of exercise. Therefore, to require subjects to choose one stage of exercise, the stage of exercise scale was modified for use in Times 2 and 3 (see Appendix D). Because the stages of exercise are nominal data, the contemplation and relapse stage were given the same numeric value (i.e., precontemplation = 1, contemplation = 2, relapse = 2, action = 3, and maintenance = 4). Thus, a higher mean indicates a higher level of exercise. Initially, data analyses were conducted with relapse coded as a 5 and again as a 2, but the significance of results was not affected. Therefore, results are reported with relapse coded as 2.

Second, a ratio measure of amount of exercise per week (hours per day X days per week) was assessed at Time 2 and Time 3. Both measures of level of exercise will be included in the data analysis.

Table 1

Compliance-Gaining Use by Stage of Exercise

	Stage					
Strategy	Precont.	Contemp.	Action	Maint.	Relapse	Total
Flattery	-	5	-	2	-	7 (2.1%)
Promise	1	4	1	1	1	8 (2.4%)
Esteem	6	29	15	34	5	89 (26.2%)
Allurement	-	2	1	4	1	8 (2.4%)
Threat	2	4	4	2	1	13 (3.8%)
Guilt	-	2	5	1	6	14 (4.1%)
Altruism	-	-	1	-	-	1 (0.3%)
Direct Request	-	1	4	6	-	11 (3.2%)
Explanation	9	24	19	25	6	83 (24.4%)
Expertise	1	2	-	1	-	4 (1.2%)
Hinting	5	10	7	15	3	40 (11.8%)
Liking	1	4	3	5	-	13 (3.8%)
Moral Appeal	-	-	-	1	-	1 (0.3%)
Altercasting	-	-	-	1	-	1 (0.3%)
Disclaimer	-	-	-	1	-	1 (0.3%)
Cooperation	-	3	2	2	2	9 (2.6%)
Negotiating Alternatives	-	17	6	9	5	37 (10.9%)
Total	27 (7.9%)	110 (32.4%)	64 (18.8%)	115 (33.8%)	24 (7.1%)	340 (100%)

Procedure

Time 1. Two samples were measured in Time 1. The first sample consisted of 419 college students attending Kent State University enrolled in an introductory communication studies course. Descriptive statistics (i.e., age and gender) were not available for this sample. The second sample also consisted of college students attending Kent State University enrolled in an introductory communication studies course. Participants in the second sample (n = 121) ranged in age from 18 to 42 (M = 20.34, SD = 3.46). Forty-nine (40.5%) of the participants were male and 72 (59.5%) of the participants were female. Participants in both samples were fulfilling a class research requirement. Participants completed the current level of exercise measure and provided their telephone numbers so they could be contacted to participate in Times 2 and 3 of the study.

Time 2. Subjects were contacted by telephone 2 months after Time 1 and asked if they would like to participate in this phase of the study. One hundred and eighty-seven subjects participated in Time 2. Participants ranged in age from 18 to 56 (M = 20.47, SD = 5.17). Eighty-seven (46.5%) of the participants were male and 100 (53.5%) of the participants were female. Subjects were assigned to a treatment or control group. The treatment group received an exercise-related pamphlet, and the control group received a pamphlet relevant to public speaking (see Appendix E).

The exercise-related pamphlets were designed to contain either: precontemplation (see Appendix F), contemplation (see Appendix G), action (see Appendix H), maintenance (see Appendix I), or relapse (see Appendix J) messages. The stage of exercise messages was assigned to match the participants' reported level of exercise in Time 1. After subjects read the pamphlet, they completed the decisional balance, and two current level of exercise measures (nominal—stage, and ratio—amount) to test for possible short-term effects of the messages.

Time 3. Subjects who participated in both Time 1 and Time 2 and agreed to participate in Time 3 were contacted by telephone again 1 month after Time 2. Participants were asked their current level of exercise behavior (both nominal—stage, and ratio—amount measures) over the telephone. Only responses of subjects who completed all three administrations of Study II were analyzed in this study (N = 177). Participants ranged in age from 18 to 56 (M = 20.39, SD = 5.10). Eighty-three (46.9%) of the participants were male, and 94 (53.1%) of the participants were female.

Results

This section contains an explanation of how the data in Study II were analyzed. This analysis includes subjects who participated in all three time periods (N = 177). First, decisional balance scores will be discussed. Second, subjects' level of exercise will be addressed.

Decisional Balance

As stated earlier, subjects were asked to write down the positive and negative elements of increasing their exercise behavior in Time 2. After writing down the positive and negative elements, subjects were asked to rate their statements using a five-point, Likert-type format, with 1 indicating not at all important and 5 being extremely important. Positive and negative raw decisional balance scores were computed by summing the ratings of each positive and negative element subjects constructed in the decisional balance measure (see Appendix C). A decisional balance score was then computed by subtracting the negative score from the positive score. Decisional balance scores ranged from -3 to 27 (M = 10.02, SD = 6.32).

Positive and negative decisional balance scores were then categorized. Subjects with a score of zero or below were classified as having a negative decisional balance (n = 7). Because there were so few subjects with a negative decisional balance, positive decisional balance was divided in three categories. First, subjects with a decisional balance score that ranged from 1 to 6 were considered to have a low, positive decisional balance (n = 50). Second, subjects with a decisional balance score that ranged from 7 to 11 were considered to have a moderate, positive decisional balance (n = 54). Third, subjects with a decisional balance score that ranged from 12 to 27 were considered to have a high, positive decisional balance (n = 57). Nine subjects did not complete the decisional balance measure.

Level of Exercise

Stage of exercise. Subjects' current stage of exercise was measured in all three time periods. As stated earlier, the contemplation and relapse stages were analyzed together. Because the stages of exercise are nominal data, relapse was coded as the second stage rather than the fifth stage. In both stages, subjects are currently not exercising. Furthermore, in the contemplation stage, subjects reported that they were thinking about exercise. In the relapse stage, subjects reported that they had exercised in the past. By remembering exercise in the past, subjects in the relapse stage can also be considered to have thoughts about exercise. Initially, data were analyzed with relapse coded as a 5. Although main effects did not differ, mean scores were not representative of the data. By coding relapse as a 2, a higher mean indicated a higher level of exercise.

In Time 1, subjects were assigned to one of the following groups, coded as follows: (1) Precontemplation—10 (5.7%) reported that they currently do not exercise and do not intend to start in the next 6 months, (2) Contemplation and Relapse—63 (35.8%) reported that they currently do not exercise, but are thinking about starting in the next 6 months, or have exercised regularly in the past, but are not doing so currently, (3) Action—49 (27.8%) reported that they currently exercise, but have only begun doing so within the last 6 months,

and (4) Maintenance—54 (30.7%) reported that they exercise regularly, and have done so for longer than 6 months. One subject did not report a stage of exercise in Time 1.

In Time 2, subjects reported being in one of the following stages: (1) Precontemplation—3 (1.7%), (2) Contemplation and Relapse—61 (34.5%), (3) Action—50 (28.2%), and (4) Maintenance—67 (35.6%). In Time 3, subjects reported being in one of the following stages: (1) Precontemplation—1 (.60%), (2) Contemplation and Relapse—50 (28.2%), (3) Action—59 (33.3%), and (4) Maintenance—67 (37.9%). Because there were so few precontemplators (n = 10) overall, these subjects were dropped from further data analyses.

Amount of exercise. As stated earlier, amount of exercise was measured in Time 2 and Time 3. Amount of exercise was operationalized as subjects' self-reported hours of exercise per day multiplied by the days of exercise per week. In Time 2, amount of exercise ranged from 0 to 27 hours per week (M = 3.86, SD = 4.59). In Time 3, amount of exercise ranged from 0 to 21 hours per week (M = 4.00, SD = 4.10). Excluding nonexercisers in Time 2, amount of exercise ranged from 1 to 27 hours per week (M = 5.98, SD = 4.40), and amount of exercise ranged from 1 to 21 hours per week in Time 3 (M = 5.60. SD = 3.80).

Decisional Balance

Hypothesis 1 predicted a relationship between decisional balance scores and exercise behavior over time. Specifically, hypothesis 1 stated:

H1: Subjects with a positive decisional balance will have higher levels of exercise than subjects with a negative decisional balance.

H1 was tested using one-way ANOVAs. The independent variable was decisional balance (negative, low/positive, moderate/positive, and high/positive). The dependent variable was level of exercise. There were significant main effects between subjects in both Times 2 and 3 (see Tables 2 and 3). In Time 2, significant differences were found in stage of exercise by decisional balance (F (3, 161) = 3.17, η^2 = .19, p < .05) and amount of exercise (F (3, 164) = 5.31, η^2 = .16, p < .01). In Time 3, significant differences were also found in stage of exercise by decisional balance (F (3, 161) = 3.2, η^2 = .15, p < .05) and amount of exercise (F (3, 164) = 3.27, η^2 = .10, p < .05).

The Newman-Keuls post hoc test with a .05 level of significant was used to investigate the significant results. In both Time 2 and Time 3, subjects with a high, positive decisional balance were at a significantly higher stage (critical value = .27) and reported significantly higher amounts of exercise (critical value = 1.45) than those

Table 2

H1: Analysis of Variance for Time 2 Exercise (Stage and Amount)

Source	df	F Stage[a]	F Amount of Exercise[b]
		Between Subjects	
Decisional Balance	3	3.17*	5.31**
S within-group error		(.62)	(17.08)

Note. Values in parentheses represent mean square errors.
[a] n = 164, mean square error df = 161.
[b] n = 167, mean square error df = 164.
*p < .05 **p < .01.

Table 3

H1: Analysis of Variance for Time 3 Exercise (Stage and Amount)

Source	df	F Stage[a]	F Amount of Exercise[b]
		Between Subjects	
Decisional Balance	3	3.20*	3.27*
S within-group error		(.64)	(14.59)

Note. Values in parentheses represent mean square errors.
[a] n = 164, mean square error df = 161.
[b] n = 167, mean square error df = 164.
*p < .05.

with a low, positive decisional balance. The means for level of exercise by decisional balance are presented in Table 4.

Research Question Two

RQ2 was used to test the effectiveness of stage messages. RQ2a and RQ2b were used to test for short-term and long-term effects, respectively. One-way ANOVAs were used to analyze RQ2. The independent variable was stage message (contemplation, action, maintenance, and relapse). The dependent variables were change in stage from Time 1 to Time 2 (short-term), change in stage from Time 2 to Time 3 (short-term), change in amount of exercise from Time 2 to Time 3 (short-term), and change in stage from Time 1 to Time 3 (long-term). There were significant main effects between subjects in both short-term and long-term changes in stage of exercise. Significant differences were found in the short-term change in stage from Time 1 to Time 2 (F (3, 134) = 6.921, η^2 = .37, p < .01) (see Table 5). The Newman-Keuls post hoc test with a .05 level of significance was used to test the significant results. Both contemplators and relapsers increased their stage of exercise more than those in the action or maintenance stages. Those in the action and maintenance stages actually decreased their level of exercise between Time 1 and Time 2. The means for change in stage from Time 1 to Time 2 are presented in Table 6.

Significant differences were also found in the long-term change in stage from Time 1 to Time 3 (F (3, 135) = 5.76, η^2 = .34, p < .01) (see Table 7). Newman-Keuls post hoc test was used to determine the significant difference in means. Again, the contemplators and relapsers increased their stage of exercise more than those in the action or maintenance stages. The means for change in stage from Time 1 to Time 3 are presented in Table 6.

In sum, H1 originally stated that subjects with a positive decisional balance would have higher levels of exercise than those with a negative decisional balance. Only 7 subjects had a negative decisional balance; therefore, the positive decisional balance group was divided into low, moderate and high. In partial support of H5, subjects with a high, positive decisional balance were at a significantly higher stage and reported significantly higher amounts of exercise than those with a low, positive decisional balance.

RQ2 was posed to analyze the effectiveness of the stage messages in the treatment groups. The contemplation message and the relapse message significantly improved contemplators and relapsers stage of exercise, respectively. However, the action and maintenance messages did not increase subjects' stage of exercise.

Table 4

H1: Level of Exercise Means for Time 2 and Time 3 (Stage and Amount)

	Time 2		Time 3	
Decisional Balance	Amount of Stage	Exercise	Stage	Amount of Exercise
Negative	2.83	2.36	2.83	1.85
Low/Positive	2.74_a	2.08_b	2.86_c	2.91_d
Moderate/Positive	3.00	3.70	3.03	3.65
High/Positive	3.23_a	5.05_b	3.33_c	4.95_d

Note. Means with common subscripts are significantly different at the .05 level.

Table 5

RQ2: Analysis of Variance for Stage Change from Time 1 to Time 2

Source	df	F Stage Change
	Between Subjects	
Stage Pamphlet	3	6.92^{**}
S within-group error	134	(.37)

Note. Value in parentheses represent mean square error.
n = 138.
** p < .01.

Table 6

RQ2: Means for Short- and Long-Term Changes in Exercise

Stage	Change in Stage From T1 to T2	Change in Stage From T1 to T3
Contemplation	$.37_{ab}$	$.40_{ef}$
Action	$-.06_{ac}$	$.06_{eg}$
Maintenance	$-.17_{bd}$	$.00_{fh}$
Relapse	$.32_{cd}$	$.38_{gh}$

Note. Means with common subscripts are significantly different at the .05 level.

Table 7

RQ2: Analysis of Variance for Stage Change from Time 1 to Time 3

Source	df	F Stage Change
	Between Subjects	
Stage Pamphlet	3	5.76^{**}
S within-group error	135	(.27)

Note. Value in parentheses represent mean square error.
n = 139.
** p < .01.

Discussion

Compliance-Gaining

In Research Question 1, I asked if compliance-gaining strategy use differs based on a person's current level of exercise. The answer to Research Question 1 was no. The two most frequently reported compliance-gaining strategies were esteem and explanation. However, there were no statistically significant differences in compliance-gaining use based on subjects' stage of exercise.

Although not statistically significant, there were some interesting findings related to the absence of certain compliance-gaining strategies in the exercise situation. Subjects did not use nine compliance-gaining strategies: aversive stimulation, coercion, debt, deceit, inaction, negative self-feeling, negotiating, and suggesting negative alternatives. All these strategies have a negative connotation and could be considered inappropriate for gaining compliance in health promotion. In addition, three of Marwell and Schmitt's (1967) compliance-gaining strategies--altercasting, altruism, and moral appeal--were only coded once. Three of the strategies never used--aversive stimulation, debt, and negative self-feeling--were also included in Marwell and Schmitt's 16 compliance-gaining strategies. Therefore, 6 of the 16 strategies in Marwell and Schmitt's typology were virtually absent in this study and may not be appropriate for the exercise situation.

Miller, Boster, Roloff, and Seibold (1977) claimed that compliance-gaining strategies are situational. The exercise context may be a situation in which people associate the same compliance-gaining strategies. For example, it has been ingrained in our society that exercise is beneficial to one's health. A possible reason why subjects constructed similar compliance-gaining messages, regardless of their stage of exercise, is that the physical benefits (explanation) and psychological benefits (esteem) of exercise are well known. Therefore, people may intuitively use similar compliance-gaining strategies in the exercise situation.

Decisional Balance

Analyses of hypothesis 1 partially supported the prediction between decisional balance and level of exercise. H1 predicted that subjects with a positive decisional balance would have higher levels of exercise than subjects with a negative decisional balance. The low number of subjects with a negative decisional balance ($n = 7$) made it difficult to test H1 accurately. Using the 3-way split of positive decisional balance, in both Time 2 and Time 3, subjects with a high, positive decisional balance were at a significantly higher stage of exercise and reported significantly higher amounts of exercise than those with a low, positive decisional balance. Similarly, Prochaska and Marcus (1994) stated that decisional balance is a core construct in predicting behavior. Thus, social exchange theory seems to be an appropriate framework to explain health behaviors.

Stage Messages

Research question two was used to determine the effectiveness of the stage of exercise messages (contemplation, action, maintenance, and relapse). Using one-way ANOVAs, short- and long-term effects were found. Subjects in the contemplation and relapse stages reported an increase in their stage of exercise from Time 1 to Time 2 (short-term effects) and from Time 1 to Time 3 (long-term effects). The contemplation and relapse messages were exercise-enhancing. Hence, the stage-specific messages were effective in increasing the stages of exercise for those who were currently not exercising at the beginning of this study.

Those in the action and maintenance stages did not increase their stage of exercise during this study. However, subjects in the action and maintenance stages are currently exercising regularly. The amounts of time for regular exercise in the action and maintenance stages are less than 6 months and more than 6 months, respectively. This study took place over a 3 month period, so some of those in the action stage could not have moved to the maintenance stage because of the time condition. Furthermore, those in the maintenance stage are currently at the highest level of exercise and could not increase their stage of exercise. Therefore, it would have been difficult to detect an increase in stage for those in the action and maintenance stages.

In sum, the Stage of Change Model was an effective audience analysis tool. The stage of exercise messages were effective. Specifically, those in the contemplation and relapse stages reported an increase in their stage of exercise throughout the study. As stated earlier, because of the time limit in this study, it would have been difficult for those in the action stage to report an increase to the maintenance stage. Furthermore, maintainers cannot increase their stage of exercise. Therefore, the stage-specific messages increased the stages of exercise for subjects who needed to enhance their exercise behavior. Hence, stage-specific messages should be designed for health promotion studies.

Decisional balance is another variable that works well in health promotion and behavior change research. Most decisional balance research focuses on the extinction of negative behaviors, such as smoking, rather than on the acquisition of positive behaviors, such as exercise. In this study, those with a high, positive decisional balance had higher levels of exercise than subjects with a low, positive decisional balance. The low number of subjects with a negative decisional balance may be due to the college student sample. People may accept the fact that physical activity is beneficial to their health and instinctively construct more positive than negative elements about exercise. Although negative and positive decisional balance scores were not analyzed in this study, the construct seems to be able to predict health behaviors. Therefore, a measure of current stage of behavior along with decisional balance should be included in health promotion studies.

References

Arntson, P. (1985). Future research in health communication. Journal of Applied Communication Research, 13, 118-130.

Babrow, A. S. (1991). Tensions between health beliefs and desires: Implications for a health communication campaign to promote a smoking-cessation program. Health Communication, 3, 93-112.

Barke, C. R., & Nicholas, D. R. (1990). Physical activity in older adults: The stages of change. Journal of Applied Gerontology, 9, 216-223.

Best, J. A., Brown, K. S., Cameron, R., Smith, E. A., & MacDonald, M. (1989). Conceptualizing outcomes for health promotion programs. In M. T. Braverman (Ed.), Evaluating health promotion programs (pp. 33-45). San Francisco: Jossey-Bass.

Boster, F. J. (1988). Comments on the utility of compliance-gaining message selection tasks. Human Communication Research, 15, 169-177.

Brownell, K. D. (1991). Personal responsibility and control over our bodies: When expectation exceeds reality. Health Psychology, 10, 303-310.

Burke, J. A. (1989). A comparison of methods for eliciting persuasive strategies: Strategy selection versus message construction. Communication Reports, 2, 72-81.

Burke, J. A., Becker, S. L., Arbogast, R. A., & Naughton, M. J. (1987). Problems and prospects of applied research: The development of an adolescent smoking prevention program. Journal of Applied Communication Research, 15, 1-18.

Burleson, B. R., Wilson, S. R., Waltman, M. S., Goering, E. M., Ely, T. K., & Whaley, B. B. (1988). Item desirability effects in compliance-gaining research: Seven studies documenting artifacts in the strategy selection procedure. Human Communication Research, 14, 429-486.

Cody, M. J., McLaughlin, M. L., & Jordan, W. J. (1980). A multidimensional scaling of three sets of compliance-gaining strategies. Communication Quarterly, 28, 34-46.

Costello, D. E. (1977). Health communication and research: An overview. Communication Yearbook, 1, 557-567.

Dervin, B. (1989). Audience as listener and learner, teacher and confidante: The sense-making approach. In R. E. Rice & C. K. Atkin (Eds.), Public communication campaigns (pp. 67-86). Newbury Park, CA: Sage.

Dishman, R. K. (1988). Overview. In R. K. Dishman (Ed.), Exercise adherence: Its impact on public health (pp. 1-9). Champaign, IL: Human Kinetics.

Dishman, R. K. (1991). Increasing and maintaining exercise and physical activity. Behavior Therapy, 22, 345-378.

Donohew, L. (1990). Public health campaigns: Individual message strategies and a model. In E. B. Ray & L. Donohew (Eds.), Communication and health: Systems and applications (pp. 136-152). Hillsdale, NJ: Lawrence Erlbaum Associates.

Flay, B. R., & Burton, D. (1990). Effective mass communication strategies for health campaigns. In C. Atkin & L. Wallack (Eds.), Mass communication and public health (pp. 129-146). Newbury Park, CA: Sage.

Folkins, C. H., & Sime, W. E. (1981). Physical fitness training and mental health. American Psychologist, 36, 373-389.

Jackson, S. (1992). Message effects research: Principles of design and analysis. New York: Guilford Press.

King, A. C., Taylor, C. B., & Haskell, W. L. (1993). Effects of differing intensities and formats of 12 months of exercise training on psychological outcomes in older adults. Health Psychology, 12, 292-300.

Knapp, D. N. (1988). Behavioral management techniques and exercise promotion. In R. K. Dishman (Ed.), Exercise adherence: Its impact on public health (pp. 203-235). Champaign, IL: Human Kinetics.

Kreps, G. L. (1988). The pervasive role of information in health and health care: Implications for health communication policy. Communication Yearbook, 11, 238-276.

Kreps, G. L., & Kunimoto, E. N. (1994). Effective communication in multicultural health care settings. Thousand Oaks, CA: Sage.

Kreps, G. L., & Thornton, B. C. (1992). Health communication: Theory and practice (2nd ed.). Prospect Heights, IL: Waveland Press.

Lefebvre, C., & Flora, J. A. (1993). Social marketing and public health intervention. In B. C. Thornton & G. L. Kreps (Eds.), Perspectives on health communication (pp. 218-237). Prospect Heights, IL: Waveland Press.

Maibach, E., & Cotton, D. (1995). Moving people to behavior change: A staged social cognitive approach to message design. In E. Maibach & R. L. Parrott (Eds.), Designing health messages: Approaches from communication theory and public health practice (pp. 41-64). Thousand Oaks, CA: Sage.

Maibach, E., & Parrott, R. L. (Eds.). (1995). Designing health messages: Approaches from communication theory and public health practice. Thousand Oaks, CA: Sage.

Maibach, E., Kreps, G. L., & Bonaguro, E. W. (1993). Developing strategic communication campaigns for HIV/AIDS prevention. In S. C. Ratzan (Ed.), AIDS: Effective health communication for the 90s (pp. 15-35). Bristol, PA: Taylor & Francis.

Marcus, B. H., & Owen, N. (1992). Motivational readiness, self-efficacy and decision-making for exercise. Journal of Applied Social Psychology, 22, 3-16.

Marcus, B. H., Rakowski, W., & Rossi, J. S. (1992). Assessing motivational readiness and decision making for exercise. Health Psychology, 11, 257-261.

Marcus, B. H., Selby, V. C., Niaura, R. S., & Rossi, J. S. (1992). Self-efficacy and the stages of exercise behavior change. Research Quarterly for Exercise and Sport, 63, 60-66.

Marwell, G., & Schmitt, D. R. (1967). Dimensions of compliance-gaining behavior: An empirical analysis. Sociometry, 30, 350-364.

McAlister, A., Ramirez, A. G., Galavotti, C., & Gallion, K. J. (1989). Antismoking campaigns: Progress in the application of social learning. In R. E. Rice & C. K. Atkin (Eds.), Public communication campaigns (2nd ed., pp. 291-307). Newbury Park, CA: Sage.

McGuire, W. J. (1989). Theoretical foundations of campaigns. In R. E. Rice & C. K. Atkin (Eds.), Public communication campaigns (2nd ed., pp. 43-65). Newbury Park, CA: Sage.

McKnight, J. (1988). Where can health communication be found? Journal of Applied Communication Research, 16, 39-43.

Mickey, T. J. (1995, November). A study in health communication and specialized media: Formative research in a media campaign addressing substance abuse. Paper presented at the meeting of the Speech Communication Association, San Antonio, TX.

Miller, G. R., Boster, F., Roloff, M., & Seibold, D. (1977). Compliance-gaining message strategies: A typology and some findings concerning effects of situational differences. Communication Monographs, 44, 37-51.

Paffenbarger, R. S. (1978). Physical activity as an index of heart attack risk in college alumni. American Journal of Epidemiology, 108, 161-175.

Paffenbarger, R. S., Hyde, R. T., Wing, A. L., & Hsieh, C. (1986). Physical activity, all-cause mortality, and longevity of college alumni. New England Journal of Medicine, 314, 605-613.

Pierce, T. W., Madden, D. J., Siegel, W. C., & Blumenthal, J. A. (1993). Effects of aerobic exercise on cognitive and psychosocial functioning in patients with mild hypertension. Health Psychology, 12, 286-291.

Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. Journal of Consulting and Clinical Psychology, 51, 390-395.

Prochaska, J. O., & DiClemente, C. C. (1986). The transtheoretical approach. In J. C. Norcross (Ed.), Handbook of eclectic psychotherapy (pp. 163-200). New York: Brunner-Mazel.

Prochaska, J. O., & Marcus, B. H. (1994). The transtheoretical model: Applications to exercise. In R. K. Dishman (Ed.), Advances in exercise adherence (pp. 161-180). Champaign, IL: Human Kinetics.

Prochaska, J. O., Norcross, J. C., Fowler, J. L., Follick, M. J., & Abrams, D. B. (1992). Attendance and outcome in a work site weight control program: Processes and stages of change as process and predictor variables. Addictive Behaviors, 17, 35-45.

Prochaska, J. O., Velicer, W. F., DiClemente, C. C., & Fava, J. (1988). Measuring process of change: Application to the cessation of smoking. Journal of Consulting and Clinical Psychology, 56, 520-528.

Prochaska, J. O., Velicer, W. F., DiClemente, C. C., Guadagnoli, E., & Rossi, J. S. (1991). Patterns of change: Dynamic typology applied to smoking cessation. Multivariate Behavioral Research, 26, 83-107.

Rakowski, W., Fulton, J. P., & Feldman, J. P. (1993). Women's decision about mammography: A replication of the relationship stages of adoption and decisional balance. Health Psychology, 12, 209-214.

Rogers, E. M., & Storey, J. D. (1987). Communication campaigns. In C. R. Berger & S. H. Chaffee (Eds.), Handbook of communication science (pp. 817-846). Newbury Park, CA: Sage.

Rossi, J. S., Rossi, S. R., Velicer, W. F., & Prochaska, J. O. (1995). Motivational readiness to control weight. In D. B. Allison (Ed.), Handbook of assessment methods for eating behaviors and weight-related problems (pp. 387-411). Thousand Oaks, CA: Sage.

Schenck-Hamlin, W. J., Wiseman, R. L., & Georgacarakos, G. N. (1982). A model of properties of compliance-gaining strategies. Communication Quarterly, 30, 92-100.

Slater, M. D. (1995). Choosing audience segmentation strategies and methods for health communication. In E. Maibach & R. L. Parrott (Eds.), Designing health messages: Approaches from communication theory and public health practice (pp. 186-198). Thousand Oaks, CA: Sage.

Sonstroem, R. J. (1988). Psychological models. In R. K. Dishman (Ed.), Exercise adherence: Its impact on public health (pp. 125-154). Champaign, IL: Human Kinetics.

Sorensen, G., Plax, T. G., & Kearney, P. (1989). The strategy selection-construction controversy: A coding scheme for analyzing teacher compliance-gaining message constructions. Communication Education, 38, 102-118.

Thibaut, J. W., & Kelley, H. H. (1959). The social psychology of groups. New York: Wiley.

Thompson, T. L., & Cusella, L. P. (1991). Communication and drug abuse prevention: Information, incentives, and metaphors. Health Communication, 3, 251-262.

Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). A decisional balance measure for assessing and predicting smoking status. Journal of Personality and Social Psychology, 48, 1279-1289.

Weinstein, N. D. (1988). The precaution adoption process. Health Psychology, 7, 355-386.

Wilcox, N. S., Prochaska, J. O., Velicer, W. F., & DiClemente, C. C. (1985). Subject characteristics as predictors of self-change in smoking. Addictive Behaviors, 10, 407-412.

World Health Organization. (1984). Health promotion: A discussion document on the concept and principles. Copenhagen: Author.

Appendix A

Stage-of-Exercise Scale

This questionnaire contains statements about your exercise behavior. Indicate your degree of agreement with each statement by placing the appropriate number in the blank to the left of the statement.

1 = strongly disagree

2 = disagree somewhat

3 = not sure

4 = agree somewhat

5 = strongly agree

1. ___ I currently do not exercise, and I do not intend to start in the next six months.
2. ___ I currently do not exercise, but I am thinking about starting to exercise in the next six months.
3. ___ I currently exercise, but I have only begun doing so within the last six months.
4. ___ I currently exercise regularly, and I have done so for longer than six months.
5. ___ I have exercised regularly in the past, but I am not doing so currently.

BEST COPY AVAILABLE

Appendix B

Compliance-Gaining Construction

Please write at least three statements that would help motivate you to exercise more.

1. _____
   _____
   _____
2. _____
   _____
   _____
3. _____
   _____
   _____

Feel free to put more responses on the back of this page.

Thank you for your participation.

Appendix C

Decisional Balance Measure

Please indicate all of the positive and negative aspects that you can think of related to exercise.

Rating	Positive Elements
___	_____
___	_____
___	_____
___	_____
___	_____
___	_____

Rating	Negative Elements
___	_____
___	_____
___	_____
___	_____
___	_____
___	_____

Next, please rate each of your statements by placing the appropriate number in the blank to the left of the statement. You may use the numbers more than once.

1 = not at all important

2 = rarely important

3 = occasionally important

4 = moderately important

5 = extremely important

Appendix D

Modified Stage-of-Exercise Scale

This questionnaire contains statements about your exercise behavior. Please read each of the following statements and then mark an X next to the left of the statement that best describes your exercise behavior.

___ I currently do not exercise, and I do not intend to start in the next six months.

___ I currently do not exercise, but I am thinking about starting to exercise in the next six months.

___ I currently exercise, but I have only begun doing so within the last six months.

If you placed an X next to this statement, how often do you usually exercise?

___ Hours per Day ___ Days per week

___ I currently exercise regularly, and I have done so for longer than six months.

If you placed an X next to this statement, how often do you usually exercise?

___ Hours per Day ___ Days per week

___ I have exercised regularly in the past, but I am not doing so currently.

Appendix E

Stagefright Pamphlet

MAKING STAGE FRIGHT WORK FOR YOU

When you give a speech, it is only natural for you to have some stage fright. In fact, there would be something wrong with you if you didn't have those feelings. The absence of any anxiety could suggest that you do not care about the audience or your subject. Almost everyone who faces a public audience experiences some kind of concern.

There are many reasons why public speaking is somewhat frightening. The important thing is not to be too anxious about the anxiety itself. Accept it as natural, then think about how you can use this anxiety to advance your speech. The biggest myth about public speaking classes is that they can or should rid you of any fears. Rather what they should do is teach you to harness the energy generated by anxiety so that it makes your speech more dynamic.

How can you control stage fright and put it to work for you? Here are some suggestions for coping with stage fright.

- Select a topic that really interests you and excites you. Get so involved in your topic that there is little room in your mind for worries about yourself.

- Select a topic that you already know something about. This will make you more confident. Build on this foundation to learn even more. Talk to experts. The better prepared you are, the more confident you can be that you have something worthwhile to say.

- PRACTICE! The more you are a master of your message, the more comfortable you will be.

- Act confident, even if you may feel some initial discomfort. Never discuss your anxiety with others before your speech. Sometimes when adrenaline is pumping, you may talk to rapidly. Before you get up to speak, practice deep, slow breathing.

Whatever happens during your speech, remember that listeners cannot see and hear inside of you. They know only what you decide to show them. Show them a controlled speaker who is caught up with communicating well-considered ideas. Never place on your listeners the additional burden of sympathy. Don't say anything like "man, am I scared!" such behavior or comments may make the audience uncomfortable as well. If you put your listeners at ease by acting confident, they can relax and provide the positive feedback that will make you even better.

As you reach your conclusion, pause, then present your summary statement and concluding remarks with special emphasis. Hold eye contact for a moment, then move confidently back to your seat. This final impression is very important. You should keep the focus on your message, not on yourself. Even though you may feel relieved that the speech is over, don't say "Whew!" or "I made it!" and NEVER shake your head to show disappointment in your presentation. Even if you did not live up to your aspirations, you probably did better than you thought!

Appendix F

Precontemplation Message

WHAT'S THE BIG DEAL ABOUT EXERCISE?

Substantial evidence supports the notion that exercise increases your health. For example, exercise decreases the risk of heart disease, reduces stress and anxiety, increases longevity, promotes weight loss, and can improve your psychological well-being. Exercising at least three times a week for at least 30 minutes each time will help strengthen your heart, lungs, muscles, bones, and joints.

No fewer than 250,000 people a year die as a result of inactivity, placing a lack of exercise in the same risky behavior category as smoking cigarettes, driving drunk, or having unprotected sex. The stark reality is that one quarter of the adult U.S. population accounts for 80% of our exercise, leaving the other three quarters at risk for a host of health problems associated with inactivity. Nearly half of us don't get enough exercise to raise our heart rates above idle.

EXERCISE TAKES TIME AND EFFORT--WHICH A LOT OF US DON'T HAVE

People won't stick to exercise if it's too hard. So experts recommend easier activities, which improve health but don't produce results you see in a mirror. But people won't stick to exercise if they don't see results. So experts recommend harder workouts. BUT, people won't stick to exercise if it's too hard.

It comes down to this: when you are out of shape, exercise doesn't feel as good as polishing off a bag of peanut M&M's. If you've never had an experience linking a physical challenge to the thrill of victory--even a small personal victory--of course you're not going to be motivated by the activity itself.

Acknowledging that you need to start exercising is the first step. You will look and feel better mentally and physically if you exercise. Just the idea of being in good health and looking good should motivate you. Take a good look at yourself. Are you satisfied with your body?

Appendix G

Contemplation Message

WHAT'S THE BIG DEAL ABOUT EXERCISE?

Substantial evidence supports the notion that exercise increases your health. For example, exercise decreases the risk of heart disease, reduces stress and anxiety, increases longevity, promotes weight loss, and can improve your psychological well-being. Exercising at least three times a week for at least 30 minutes each time will help strengthen your heart, lungs, muscles, bones, and joints.

No fewer than 250,000 people a year die as a result of inactivity, placing a lack of exercise in the same risky behavior category as smoking cigarettes, driving drunk, or having unprotected sex. The stark reality is that one quarter of the adult U.S. population accounts for 80% of our exercise, leaving the other three quarters at risk for a host of health problems associated with inactivity. Nearly half of us don't get enough exercise to raise our heart rates above idle.

MAKE THE DECISION AND STICK WITH IT!!

People won't stick to exercise if it's too hard. So experts recommend easier activities, which improve health but don't produce results you see in a mirror. But people won't stick to exercise if they don't see results. So experts recommend harder workouts. BUT, people won't stick to exercise if it's too hard.

It comes down to making the decision to exercise and sticking with that decision. Unfortunately most of us aren't willing to squeeze three 30 minute workouts into an already hectic week. However, some activity is better than none. A Harvard study found that stair climbing, walking, and light sports that burn at least 2,000 calories a week offer protection against heart disease. Making the decision that you need to increase your exercise is the first step. You will look and feel better mentally and physically if you exercise. Just the idea of being in good health and looking good should motivate you. Exercise can be very rewarding. Start today--it's never too late!

Appendix H

Action Message

WHAT'S THE BIG DEAL ABOUT EXERCISE?

Substantial evidence supports the notion that exercise increases your health. For example, exercise decreases the risk of heart disease, reduces stress and anxiety, increases longevity, promotes weight loss, and can improve your psychological well-being. Exercising at least three times a week for at least 30 minutes each time will help strengthen your heart, lungs, muscles, bones, and joints.

No fewer than 250,000 people a year die as a result of inactivity, placing a lack of exercise in the same risky behavior category as smoking cigarettes, driving drunk, or having unprotected sex. The stark reality is that one quarter of the adult U.S. population accounts for 80% of our exercise, leaving the other three quarters at risk for a host of health problems associated with inactivity. Nearly half of us don't get enough exercise to raise our heart rates above idle.

STAYING IN SHAPE TAKES TIME AND EFFORT--BUT IT CAN BE DONE

Remember, you can't store fitness. If you stop being active your fitness will rapidly decline. Although memberships in health clubs are increasing, approximately 50% of the members will drop out within six months to one year.

Each person is the best judge of what kinds of exercise suit him or her. Exercise takes effort. If you don't feel like working out one day--don't. Squeezing exercise into an already crowded day is asking for failure. Make exercise part of your routine so that it isn't a chore to fit into your daily schedule.

If you continue to exercise, your time will be well rewarded. Sure it takes time, but it's time well spent. Exercise makes you look and feel better mentally and physically. Just the idea of looking good and being in good health should be motivation. Remember, just three 30-minute workouts a week will keep you shape.

Appendix I

Maintenance Message

WHAT'S THE BIG DEAL ABOUT EXERCISE?

Substantial evidence supports the notion that exercise increases your health. For example, exercise decreases the risk of heart disease, reduces stress and anxiety, increases longevity, promotes weight loss, and can improve your psychological well-being. Exercising at least three times a week for at least 30 minutes each time will help strengthen your heart, lungs, muscles, bones, and joints.

No fewer than 250,000 people a year die as a result of inactivity, placing a lack of exercise in the same risky behavior category as smoking cigarettes, driving drunk, or having unprotected sex. The stark reality is that one quarter of the adult U.S. population accounts for 80% of our exercise, leaving the other three quarters at risk for a host of health problems associated with inactivity. Nearly half of us don't get enough exercise to raise our heart rates above idle.

THERE ARE MANY REWARDS FOR EXERCISING REGULARLY

Remember, you can't store fitness. If you stop being active your fitness will rapidly decline. Although memberships in health clubs are increasing, approximately 50% of the members will drop out within six months to one year.

Set up a system of goals and rewards. Reward yourself when you reach one of your goals. Feel free to experiment with different activities. For example, exercise outdoors, do low impact exercises, make exercise a social activity with others. If you find new and interesting activities to vary your routine, you will enjoy exercising more.

Exercise benefits you in several ways. It's not just about keeping weight off or looking healthy. Exercise helps reduce stress and gives you energy to do more interesting things. You will look and feel better if you continue to exercise regularly. Once regular exercise becomes part of your routine, it becomes as natural as sleeping and eating. Remember, just three 30-minute workout a week will keep you shape.

Appendix J

Relapse Message

WHAT'S THE BIG DEAL ABOUT EXERCISE?

Substantial evidence supports the notion that exercise increases your health. For example, exercise decreases the risk of heart disease, reduces stress and anxiety, increases longevity, promotes weight loss, and can improve your psychological well-being. Exercising at least three times a week for at least 30 minutes each time will help strengthen your heart, lungs, muscles, bones, and joints.

No fewer than 250,000 people a year die as a result of inactivity, placing a lack of exercise in the same risky behavior category as smoking cigarettes, driving drunk, or having unprotected sex. The stark reality is that one quarter of the adult U.S. population accounts for 80% of our exercise, leaving the other three quarters at risk for a host of health problems associated with inactivity. Nearly half of us don't get enough exercise to raise our heart rates above idle.

IT'S NOT TOO LATE TO GET BACK IN SHAPE

People won't stick to exercise if it's too hard. So experts recommend easier activities, which improve health but don't produce results you see in a mirror. But people won't stick to exercise if they don't see results. So experts recommend harder workouts. BUT, people won't stick to exercise if it's too hard.

Remember, you can't store fitness. If you stop being active your fitness will rapidly decline. Although memberships in health clubs are increasing, approximately 50% of the members will drop out within six months to one year.

If you've exercised in the past, you know what the results can be. You will look and feel better mentally and physically if you exercise. Just the idea of being in good health and looking good should motivate you. Just three 30-minute workouts a week will help you get back in shape. Start today--it's never too late!